Clinical Recommendations for Treatment of COVID-19 Adult Patients

Written by: Faculty in Infectious Diseases, Emergency Medicine, Pulmonary/Critical Care, Hospital/General Medicine, Cardiology, & Radiology

Approved by: ACPC

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Summary

This document highlights key updates to VUMC's COVID-19 treatment guidelines since the last release.

The document will reference links to guidelines posted on VUMC's COVID-19 clinical guidance website throughout, rather than restating previously posted information.

See the previous release for items not contained in this update: Clinical Recommendations for Treatment of COVID-19 Adult Patients

Key Updates by Topic

1. **General guidelines for admitted patients *(updated information bolded below)***
    - Admission criteria for COVID-19 are identical to those for other viral pneumonias (i.e.,influenza).
    - Patients to be admitted for COVID-19 or suspected COVID-19 should receive the following: CBC with differential, CMP, RPP, and Chest Xray.
    - Chest CT is NOT recommended in COVID-19 screening and initial diagnosis. Chest CT has been found to be negative in 50% of early cases.
        - There is no indication for CT scan in COVID-19 positive patients who are well enough to be sent home from the ED or outpatient setting.
        - Chest CT may be helpful in assessing suspected complications of hospitalized COVID-19 positive inpatients, including abscess or empyema.
        - Chest PE studies should be limited to clearly appropriate cases
    - Do NOT routinely use telemetry for COVID-19 patients unless the patient meets another telemetry criterion.
    - **Infectious Diseases will participate in daily huddles/calls with primary team members caring for COVID-19 positive patients to assist with care.** They are also available for patient consultation as needed.
    - Decision to transfer to higher level of care (ICU) should be made using usual IDSA/ATS pneumonia criteria in conjunction with either the MICU fellow or rapid response team.

2. Updated recommendations regarding antivirals

INPATIENT:

- **No medications are proven to be effective in the treatment of COVID-19**
- Treating clinicians may choose to administer **hydroxychloroquine** as a medication for COVID-19 based on emerging early observations but keeping in mind the known adverse events (QT prolongation, bone marrow suppression, neuropathy, and many drug-drug interactions). Some prior trials in HIV and Chikungunya infection have suggested that hydroxychloroquine may worsen outcomes in those infections by increasing viral load.
- Please note the **updated dosing recommendation of hydroxychloroquine 400mg BID for 1 day, then 200mg PO BID for 4 days.**

    - Patients for whom use of hydroxychloroquine may be considered:
        - Confirmed SARS-CoV-2 AND
        - Hospital admission AND
        - One criterion from any of the following categories:
            - Age: ≥60 years
            - Comorbidities: Chronic lung disease, coronary artery disease, diabetes mellitus, hypertension, chronic kidney disease, active malignancy, immunosuppressed state
            - Clinical worsening after 12 hours: Including but not limited to: SpO2 ≤92%, tachypnea ≥24 breaths/minute, tachycardia ≥125 beats/minute
    - Dose: 400mg BID for 1 day, then 200mg PO BID for 4 days
    - Absolute contraindications: Known hypersensitivity to hydroxychloroquine, 4-aminoquinoline derivatives, or any component of the formulation
    - Relative contraindications: Pregnancy, seizure disorder on antiepileptics, long QT syndrome, sick sinus syndrome, AV block, bundle branch block
    - Monitoring: CBC at baseline and periodically, CMP at baseline and periodically, blood glucose daily and for symptoms of hypoglycemia, and ECG at baseline and 24 hours after starting hydroxychloroquine to evaluate QTc. For ICU patients, compare QTc between ECG and telemetry and follow QTc by telemetry daily.
    - Precautions: Monitor for drug-drug interactions, particularly with antipsychotics, antiarrhythmics, and antiepileptics; Do not begin/use if QTc > 500ms in floor patients, >550ms in ICU patients.

OUTPATIENT:

- At present, **we are not recommending administering antivirals to outpatients**; however, if providers are compelled to prescribe hydroxychloroquine to outpatients with confirmed COVID-19, please send the prescription to a pharmacy outside of VUMC, so as to preserve the VUMC supply for inpatients. We do NOT recommend use of hydroxychloroquine for prophylaxis, because it has not been shown to be effective and to preserve all available drug for treatment of rheumatologic/autoimmune diseases and severe COVID-19.
- **HIV antivirals** such as lopinavir/ritonavir, darunavir/cobicistat, darunavir/ritonavir, or atazanavir, are NOT currently recommended for COVID-19 at VUMC.

NOVEL MEDICATIONS

- VUMC anticipates being a site in the inpatient **remdesevir** study soon. Until then, a multi-disciplinary team is reviewing patients who meet criteria of remdesevir compassionate use/expanded access and making recommendations on a case-by-case basis.
- **Tocilizumab** is being considered for COVID-19 patients who clinically worsen despite other therapies. This medication is restricted and requires completion of a RedCap form at time of ordering, followed by approval from the multi-disciplinary team. VUMC is investigating potential clinical trials of this medication as well.

3. **Recommendations for ACE/ARBs in COVID-19 pts**
    - Continue ARBs or ACE inhibitors in patients with indications.
    - Do not start ARBs or ACE inhibitors solely for COVID-19.
    - A continuously updated reference and summary of the nephrology professional society recommendations can be found at http://www.nephjc.com/news/covidace2

4. **Recommendations for NSAIDs in COVID-19 pts**
    - NAIDS should be used with caution in patients with COVID-19 infection. In the absence of liver injury or another contraindication, acetaminophen is the preferred antipyretic.
    - See MyVUMC article for more information.

5. **Guidelines for testing of patients who develop symptoms *after* admission**
    - Only consider COVID-19 in inpatients with a new onset cough or dyspnea IF they have evidence of viral pneumonia on Chest x-ray or lymphopenia/leukopenia on CBC with differential or do NOT have other clinical explanation for their symptoms
    - Do not test for COVID-19 for inpatients with isolated fever and no other symptoms.
    - Full process recommendation in Appendix

6. **Consult recommendations**
    - Consult guidance for primary teams:
        - All consulting services are available for patients at VUMC.
        - Please use discretion when requesting inpatient specialty consults or ancillary services for issues that may appropriately be addressed in the outpatient setting. In these cases, please contact the appropriate team and request outpatient evaluation.
            - For COVID 19 suspect or confirmed patients:
                - If a clinical consult is needed, discuss with the consulting team whether the consult may be deferred until the patient's COVID-19 test has resulted. Consultants are discouraged from conducting consults on these patients while they are housed in the ED.

    - Consult guidance for consulting teams:
        - Consultants are expected to continue standards of care and provide consultative services as requested. This includes **evaluation of all requested patients regardless of their COVID-19 status.**
        - For non-COVID confirmed patients, conducting a telehealth consult using an iPad is acceptable and encouraged, when available and appropriate.
        - Consultants may request that an inpatient consult be converted to an outpatient consult.
            - If the primary team agrees with conversion to an outpatient consult, then the consulting team is responsible for ensuring that the outpatient consult is scheduled.
            - If the primary team requests that the consult be performed in the inpatient setting, then the consult should be performed in a timely manner as requested.
        - For COVID-19 suspect or confirmed patients:
            - Conducting a telehealth consult using an iPad is preferred, when available and appropriate.
            - If a hands-on physical exam is required, only one consultant should enter the room and perform the consult, in order to limit exposure and use of PPE.

7. **Recommendations for follow-up of COVID-19 positive patients**
    - Patients who test positive for COVID-19 should self-isolate x 7 days AND until fever-free x 72 hours.
    - Patients do NOT need follow-up COVID-19 testing after a positive result.
    - A VHAN Care Coordinator team member will automatically follow all non-employee, COVID-19 positive patients whose COVID-19 tests result in eStar. VUMC employees will be followed by VUMC Occupational Health.
    - The VHAN Care Coordinator team member will contact every non-employee, COVID-19 positive patient identified through eStar test results at least once.
        - If the patient identifies/confirms a PCP at the first phone call, the VHAN Care Coordinator team member will perform a warm hand off to the PCP and their staff. If the PCP accepts responsibility, the PCP and their staff will perform telephone and/or telemedicine follow up at least every other day for 14 days.
        - If the patient does not identify/confirm a PCP or if the PCP declines to follow the patient, the VHAN Care Coordinator team member will continue to follow the patient with at least every other day phone calls for 14 days following the patient's initial positive COVID-19 test result.
    - Advanced practice providers from Vanderbilt Health OnCall will perform patient consultation via telephone or telemedicine on an as needed basis.
    - For patients of high concern who are discharged from a VUMC walk-in clinic or ED with a pending COVID-19 test, a home health consultation may be placed and the patient will be directly followed by home health. Home health should also be considered for COVID-19 confirmed patients being discharged from the hospital.
    - See Appendix for additional details

Appendix:

Additional Guidance by Topic

Updated antiviral treatment recommendations

References:

1. China CDC Weekly. The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Disease (COVID-19) – China, 2020. The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51. Accepted February 14, 2020 [Accessed March 14, 2020}
2. Zhou F; Yu T; Du R; *et al*. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. The Lancet. March 11, 2020. doi https://doi.org/10.1016/S0140-6736(20)30566-3
3. Yao X, Ye F, Zhang M, *et al*. In Vitro Antiviral Activity and Projection of Optimized Dosing Design of Hydroxychloroquine for the Treatment of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). *Clin Infect Dis*. doi:10.1093/cid/ciaa237
4. Cao B; Wang Y; Wen D; *et al*. A Trial of Lopinavir–Ritonavir in Adults Hospitalized with Severe Covid-19. NEJM. March 18, 2020. doi: 10.1056/NEJMoa2001282
5. Johnson & Johnson. Lack of evidence to support use of darunavir-based treatments for SARS-CoV-2. https://www.jnj.com/lack-of-evidence-to-support-darunavir-based-hiv-treatments-for-coronavirus [Accessed March 19, 2020]

Recommendations- Adult Inpatients Who Develop Symptoms After Admission:

1. Only consider COVID-19 in inpatients with a new onset cough or dyspnea.
   - Most patients will develop fever during the course of their illness, but fever may not be present at the onset of cough/dyspnea.
2. Check a CBC with differential.
   - Many patients with COVID-19 have leukopenia (~1/3) or lymphopenia (~2/3).
3. Obtain a Chest X-ray.
   - Most patients (~2/3) will have findings consistent with a viral pneumonia, including patchy infiltrates.
4. Assess the available data.
   - If a patient has other clinical reasons for their new cough or dyspnea, in the absence of concerning findings on CBC with diff or Chest X-ray, proceed with current standard of care.
   - If a patient does not have other clinical reasons for their new cough or dyspnea or has concerning findings on CBC with diff or Chest X-ray, place patient on precautions (Droplet + Contact + Eye Protection) and proceed with testing for SARS-CoV-2 PCR.
5. Do not test asymptomatic patients, even if they report exposure to a COVID-19 patient.
   - Testing of only symptomatic patients is standard of care and helps to preserve available testing materials/PPE and improves overall test turnaround time.

Post COVID 19 positive testing follow up. Updated 3/20/20 @ 17:46.
COVID 19 positive patients.
Follow-up after evaluation as 1) an outpatient, 2) in the ED, or 3) following hospital discharge: COVID to Home (C2H).

		Level of follow-up required				
		Low Intensity	Medium Intensity		High Intensity (C2H)	
		1	2	3	4	5
Type of follow up		Telephone	Telemedicine		In person at home	
Contact for enrollment		COVID registry Phone number: XXX-XXX-XXXX			Home health consultation order Pager number: 615-835-5454	
How to enroll		Deputized care coord follows registry Arranges and ensures follow up Communicates with PCP, VHOC, C2H		Request from Deputized care coordinator or HH	Referral to home health via consult Pager	
Delivery method		RN calls pt if not arranged with other service	PCP follow up (PCP gets resulted of positive test)	VHOC follow up (care coord or HH -> inbasket VHOC)	RN and telemedicine APP	RN and in person APP
Timing		q 2d up to 14d	q 2d up to 14d	when requested	24h	24h
Criteria		Test positive Healthy Mild disease Phone call only	Test positive PCP at VUMC Mod disease	Test positive No VUMC PCP PCP unavailable Mod disease	Test pend/pos High risk Severe disease HH area	Test pend/pos Highest risk Severe disease VHOC area
Services		Deputized care coord to conduct remote check-in	MD follow up via telemedicine visit	VHOC follow up via -telephone -telemedicine	Oximetry Daily RN Tele VHOC + daily call	Oximetry Daily RN At home VHOC + daily call
Location	Mortality risk					
Outpt or ED with VUMC PCP	Lower	available	available	available		
	Higher				available	available
Outpt or ED without VUMC PCP	Lower	Goal follow up with own PCP or establish PCP at VUMC				
	Higher				available	available
Post Hospital	Lower		available	available		
	Higher				available	available